

## CLAIMS

1. A method for recording a plurality of data, at least a part of which are simultaneously received, onto a recording medium with the use of a recording apparatus for recording the data, the method comprising the steps of:

(a) detecting continuous vacant regions in the recording medium;

(b) selecting, from the detected vacant regions, for each of the data, at least one vacant region having a recording capacity larger than data size of said each of the data; and

(c) recording corresponding data onto the selected vacant regions, respectively.

2. The method as set forth in claim 1, wherein:

the recording apparatus includes temporary memory means for temporarily storing partial data, which is a part of the data to be recorded onto the recording medium, and

the step (c) includes the step of:

(d) allocating memory regions of the temporary memory means to the data, respectively, when the plurality of data are simultaneously supplied to said recording apparatus so as to be recorded.

3. The method as set forth in claim 1, wherein:

the recording medium has TOC information, and the continuous vacant regions are obtained, in the (a) step, in accordance with the TOC information.

4. The method as set forth in claim 1, further comprising the steps of:

(e) calculating recordable data input time of each of the continuous vacant regions detected in the (a) step, which recordable data input time is time required for the data which are inputted to the recording apparatus and correspond to the vacant region; and

(f) acquiring data input time during which the data are inputted to the recording apparatus,

wherein:

in the step (b), a vacant region having recordable data input time longer than the data input time is selected for each of the data in accordance with (i) the recordable data input time calculated in the step (e), and (ii) the data input time acquired in the step (f).

5. The method as set forth in claim 4, wherein:

in the step (f), the data input time is acquired in accordance with EPG information.

6. The method as set forth in claim 1, wherein:

in the step (b), the selection of the respective vacant regions for the simultaneously inputted data is carried out such that data to be recorded later is recorded onto a vacant region located in a downstream side with respect to a vacant region for data to be recorded earlier.

7. The method as set forth in claim 1, further comprising the steps of:

(g) allocating the vacant regions detected in the step (a), in accordance with a category of the data; and

(h) acquiring the category of the inputted data,  
wherein:

in the step (b), the vacant region having the recording capacity larger than the data size of each of the data is selected, for each of the data, from the vacant regions allocated in the step (g) in accordance with the category, acquired in the step (h), of the data.

8. The method as set forth in claim 7, wherein:

in the step (h), the category of the data is acquired in accordance with EPG information.

9. The method as set forth in claim 1, wherein:

in the step (a), in cases where the recording medium has a plurality of recording layers, the continuous vacant regions are detected in each of the layers of the recording medium.

10. The method as set forth in claim 9, wherein:

in the step (b), the vacant regions are selected from vacant regions in a different layer.

11. A recording apparatus for recording a plurality of data, at least a part of which are simultaneously received, onto a recording medium, the recording apparatus comprising:

detecting means for detecting continuous vacant regions in the recording medium;

selecting means for selecting, from the detected vacant regions, for each of the data, at least one vacant region having a recording capacity larger than data size of said each of the data; and

recording control means for recording corresponding data onto the selected vacant regions, respectively.

12. The recording apparatus as set forth in claim 11, further comprising:

temporary memory means for temporarily storing partial data, which is a part of the data to be recorded onto the recording medium,

wherein:

the recording control means includes allocating means for allocating memory regions of the temporary memory means to the data, respectively, when the data are simultaneously supplied to said recording apparatus so as to be recorded.

13. The recording apparatus as set forth in claim 11, wherein:

the recording medium includes TOC information, and the detecting means detects the continuous vacant regions in accordance with the TOC information.

14. The recording apparatus as set forth in claim 11, further comprising:

calculating means for calculating recordable data input time of each of the continuous vacant regions detected by the detecting means, which recordable data input time is time required for the data which are inputted to the recording apparatus and correspond to the vacant region; and

acquiring means for acquiring data input time

during which the data are inputted to the recording apparatus,

wherein:

the selecting means selects, for each of the data, a vacant region having recordable data input time longer than the data input time, in accordance with (i) the recordable data input time calculated by the calculating means, and (ii) the data input time acquired by the acquiring means.

15. The method as set forth in claim 14, wherein:

the acquiring means acquires the data input time in accordance with EPG information.

16. The recording apparatus as set forth in claim 11, wherein:

the selecting means selects the respective vacant regions for the simultaneously inputted data such that data to be recorded later is recorded onto a vacant region located in a downstream side with respect to a vacant region for data to be recorded earlier.

17. The recording apparatus as set forth in claim 11, further comprising:

vacant region allocating means for allocating the

vacant regions detected by the detecting means, in accordance with a category of the data; and

data category acquiring means for acquiring the category of the inputted data,

wherein:

the selecting means selects the vacant region having the recording capacity larger than the data size of each of the data, the selecting being carried out, for each of the data, from the vacant regions allocated by the vacant region allocating means in accordance with the category, acquired by the data category acquiring means, of the data.

18. The method as set forth in claim 17, wherein:

the data category acquiring means is able to acquire EPG information, and acquires the category of the data in accordance with the EPG information.

19. The recording apparatus as set forth in claim 11, wherein:

in cases where the recording medium has a plurality of recording layers, the detecting means detects the continuous vacant regions in each of the layers of the recording medium.

20. The recording apparatus as set forth in claim 19, wherein:

the selecting means selects the vacant regions from vacant regions in a respective layer.

21. A data recording program for causing a computer to carry out the steps of the method as set forth in any one of claims 1 through 10.

22. A recording medium for storing the data recording program as set forth in claim 21.